

ILLICIT DISCHARGE DETECTION & ELIMINATION PROGRAM

AT THE US NAVAL ACADEMY/
NAVAL SUPPORT ACTIVITY
ANNAPOLIS

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NSA Annapolis/USNA & the Bay

Approximately 1,200 acres of land which drains to several water bodies:

- Severn River
- College Creek
- Spa Creek
- Carr Creek
- Mill Creek
- Chesapeake Bay



Multiple Permits related to Chesapeake Bay Impacts/Legislation

- National Pollutant Discharge Elimination System (NPDES) Permit for sanitary wastewater discharge from Navy-owned wastewater treatment plant (WWTP); also permit with the City of Annapolis for sewage discharged from USNA
- NPDES Permit for Industrial Wastewater Discharges (primarily Yard Patrol Craft marina and Lejune pool)
- General Permit for Stormwater associated with Construction Activity
- Maryland Phase II Municipal Separate Storm Sewer System (MS4) Discharge Permit (Nov 2009)

Stormwater – Phase II MS4 Permit

- We're still waiting for the new permit...
- Both existing and new permit are anticipated to have similar minimum control measures/programmatic elements:
 - Public Education and Outreach
 - Public Involvement and Participation
 - Illicit Discharge Detection and Elimination (IDDE)
 - Construction Site Runoff Control
 - Post Construction Stormwater Management
 - Pollution Prevention and Good Housekeeping

IDDE Program - Summary

- Identify Stormwater Outfalls/Storm Sewer System
- Conduct initial Illicit Discharge Survey (IDS), to include mapping (GPS) of storm sewer system and structures
 - Smoke testing and dye testing
- Backtrack flow and sample as needed
- Correct any significant issues
- Evaluate outfall drainage areas based on potential for discharges from industrial activity, observed issues from the IDS, and sampling results
- Implement the follow-on part of the program

IDS Details

- Begin at each discharge point and to work upstream in the system to identify and isolate the source of the identified discharge.
- For submerged discharge points due to tidal influence, the inspection was performed at the closest upstream manhole without tidal influence.
- A total of one hundred and twenty two (122) stormwater discharge points were inspected during dry weather conditions.
- The inspections also included one hundred and nine (109) stormwater conveyance structures, such as drop inlets and manholes.

IDDE Program – Lessons Learned

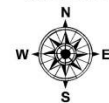
- It's harder to figure out where everything drains than you think
- Dye testing takes time...
- Flow during dry weather does not necessarily equate to an illicit discharge
- Checking manholes upstream from an outfall is a very good idea (maybe not all of them...)
- Although easier than the initial IDS, the follow-on inspections will also take a lot of time

Table 5-1. Illicit Discharge Recommended Actions Summary Table

Structures where Dry Weather Flow or Indicators were Found	Point Discharged to	Illicit Discharge Found	Other Issues Identified	How Identified	Potential Significant Sources	Recommended Actions
Manhole AL29-SD-6572	SD253	No	Dry weather flow with high copper	Sampled dry weather flow in manhole	Copper roof on buildings 105 and 107	Continued Monitoring
			Dry weather flow with potential nutrient sources	Sampled dry weather flow in manhole	Surrounding Lower Yard USNA fields	Nutrient Management Program for fields
Manhole AK29-SD-6568	SD253	No	No elevated parameters found	Sampled dry weather flow in manhole	Tidal flow most likely pumped in from parallel steam conduit tunnel	Close off connection or continue monitoring
Manhole AN27-SD-6510	SD255	No	Intermittent flow in manhole	Visual inspection	Unknown; Upstream buildings 117 and 118 dye testing returned no connections	Continue monitoring
Discharge Point SD280	SD106	No	Dry weather flow at discharge point	Sampled dry weather flow	Condensate from chiller in Building 103; no elevated parameters in sample	Continue monitoring
Manhole AQ36-SD-6997	SD106	No	Dry weather flow indicators in manhole	Yellow coloration along pipe	Only upstream inlet is tennis court	Continue monitoring
Manhole AP36-SD-6813	SD106	No	Sampled; nitrogen elevated	4" line discharging into manhole	Steam system	Close off connection or continue monitoring
Manholes L47-SD-1253; L48-SD-1539; L48-SD-1543; L52-SD-1656; M54-SD-7201	SD418	Yes	Confirmed sanitary and washwater waste	Visually, smoke and dye Testing and sampling	Building 46NS directly connected to storm system	Close off connections and continue monitoring
Manhole L48-SD-1540	SD418	No	Dry weather flow at manhole	Sampled dry weather flow	Groundwater with low levels of detergent; source undetermined	Further investigation and/or continue monitoring
Manhole Q47-SD-1577	SD402	No	Intermittent dry weather flow at manhole	Intermittent dry weather flow	County property	Continue monitoring
Discharge Point SD300	--	No	Intermittent dry weather flow at manhole	Dry weather flow	Drainage from state highway	Continue monitoring
Discharge Point SD422	--	No	Dry weather flow	Dry weather flow at inlet	Visually confirmed drainage from dewatering activities at construction site	Continue to inspect for construction SWPPP compliance
Discharge Point SD315	--	No	Discharge point half-filled with baseball field gravel	Visual inspection at discharge point	Baseball Field Inlets SD4355, SD4228, SD4225, SD4224, SD4223, SD4222, SD4221, SD4220, SD4219A, SD4219	Install protective screen over inlets to prevent gravel transfer

Annapolis North Severn Storm Sewer

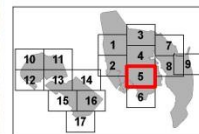
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Legend

- ▲ Discharge Point
- Catch Basin
- Curb Inlet
- Drop Inlet
- Roof Drain
- Surface Drain
- Junction Box
- Manhole
- Headwall
- Culvert Line
- Open Drainage Line
- Installation Boundary
- Storm Sewer Pipe**
 - Abandoned
 - SW Infrastructure
 - Service
- Corrective Actions**
 - Close Connection
 - Continue Monitoring
 - Inspect for SWPPP Compliance
 - Install Protective Screen
 - Fertilizer Management
- BMP Type**
 - Bio-Retention
 - Bio Swale
 - Dry Pond
 - Enhanced Filter
 - Permeable Pavement
 - Sand Filter
 - Vegetated
 - Wet Pond



80 40 0 40 80
Feet

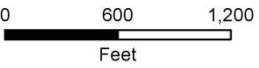
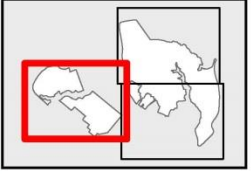


**DISCHARGE POINT
FREQUENCY
INSPECTION SCHEDULE**



Legend

-  Installation Boundary
-  Storm Discharge Point
-  Storm Discharge Point
High Priority Requiring
Annual Inspection
-  Storm Sewer Pipe
-  Inspect Once a Year
-  Inspect Every 2 Years
-  Inspect Every 3 Years
-  Inspect Every 4 Years



SD130

Project	Annapolis SW
Created	2013-11-22 15:12:23 UTC by Greg Milstead
Updated	2014-02-26 09:19:10 EST by BC VAB
Location	38.9777168545768, -76.4803799428046

General Information

Inspector	Kyle and Catherine
Date	2013-11-22
Time	1344
Weather Conditions	Cloudy
Temperature (C):	50
Last Rain Event	<0.1 in & >72 hours

Outfall_Map



General Outfall Information

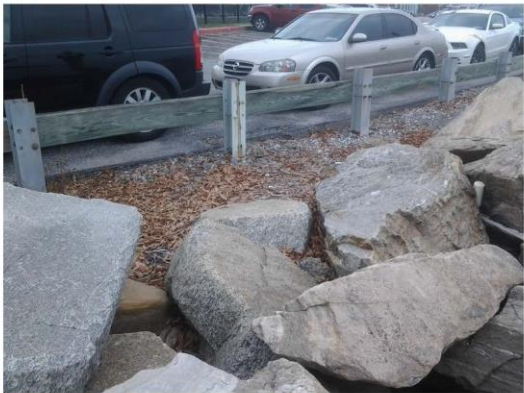
Outfall ID	SD130
Outfall Origin	Inlet
Land Use	Institutional
Is Outfall Surcharged?	Yes (Submerged during Low Tide)

Outfall Photo



Facing South

Outfall Area Photo



Outfall Assessment Photo



Dry Weather Flow Observed?	No Dry Weather Observed
Structure 1	
Structure 1 Type	Inlet
Asset ID of Structure 1	AP41-SD-6816
Structure 1 Material	Reinforced Concrete
Condition of Structure 1	Normal
Structure 1 Surcharged?	Yes

Outfall Assessment	
Outfall Type	Pipe
Outfall Material	Reinforced Concrete Pipe
Outfall Diameter (in)	24
Outfall Structural Condition	Normal
Type and Condition of Vegetation:	N/A
Signs of Erosion?	No

Structure 1 Photo



Structure 1 Area Photo



Structure 2 Photo



Structure 2 Area Photo



Structure 2 Dry Weather Flow?

No Dry Weather Observed

Structure 2	
Structure 2 Type	Inlet
Asset ID of Structure 2	AP41-SD-8778
Structure 2 Material	Brick
Condition of Structure 2	Normal
Structure 2 Surcharged?	No

QUESTIONS???

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